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ABSTRACT

A net impact evaluation was conducted of the Ohio JOBS (Job Opportunities and Basic Skills) Student Retention Program (JSRP) pursued by some JOBS program clients to fulfill their responsibilities and receive federal aid. JSRP was a support program designed to assist entry to and success in programs of study at two-year community or technical colleges. The empirical work relied on matching state administrative data from three sources: JSRP program participation data collected by individual community colleges and managed by the state, Ohio Department of Human Services (ODHS) CRIS-E (welfare) data, and several quarters of the Ohio Bureau of Employment Services wage-record data. The net impact analysis relied on an unadjusted comparison of means and regression-adjusted comparison of means for the JSRP group and a comparison group composed of JOBS clients in the ODHS CRIS-E file with 12 or more years of schooling who were assigned to higher education as their JOBS component. Outcomes included employment, earnings, and welfare recipiency. JSRP participation increased earnings an average of 8.45 percent; JSRP completion yielded an estimated increase of 12.91 percent. Results indicated that encouraging postsecondary education for a subset of welfare recipients might help to boost earnings capacity and that using readily available state administrative data to evaluate policy was beneficial. (Appendixes include information on constructing the comparison group, 10 references, 18 tables, and 1 figure.) (YLB)

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Using Administrative Data to Evaluate the Ohio JOBS Student Retention Program

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Abstract

This paper presents findings from a net impact evaluation of the Ohio JOBS Student Retention Program (JSRP). The JOBS program, a component of the federal Aid to Families with Dependent Children (AFDC) program, was required in all states for AFDC recipients who met certain criteria. The Ohio JSRP was an activity pursued by some JOBS program clients in Ohio to fulfill their responsibilities in order to receive aid. The JSRP was a threefold support program designed to facilitate entry to and success in programs of study at two-year community or technical colleges. We evaluated this state welfare policy while simultaneously dealing with methodological issues associated with the use of the different state administrative data sets.

Community colleges are natural partners in states' attempts to help welfare recipients in their transitions from public assistance to work. Historically, two-year colleges have served older and disadvantaged students, and so they have a tradition of providing the sort of individualized attention to support successfully welfare recipients through to degree completion. Approximately 17,000 individuals had participated in the Ohio JSRP program between its inception in 1990 and summer 1995, the time period for this study. While this program's inception pre-dates the current new welfare environment, the lessons learned serve to inform the ongoing policy debate.

The focus of this paper is an evaluation using state administrative data. The empirical work relied on matching state administrative data from three sources: JSRP program participation data collected by the individual community colleges and managed by the state, Ohio Department of Human Resources CRIS-E (welfare) data, and many quarters of the Ohio Bureau of Employment Services wage-record

data. There were three major problems with using these data. First, there was incomplete information concerning program and degree completion, but we could analyze program participation and link to employment outcomes. Second, there were difficulties matching across data sources; for example, not all individuals in the JSRP files were located in the CRIS-E files. Third, there was no random assignment with a true control group. We handled this final problem by constructing a comparison group pulled from the CRIS-E files—those individuals in higher education but not participating in JSRP. We were able to merge data across these three sources without any confidentiality problems.

Our net impact analysis relied on an unadjusted comparison of means and a regression-adjusted comparison of means for the JSRP group and the constructed comparison group. The comparison group was comprised of JOBS clients in the ODHS CRIS-E file with twelve or more years of schooling who were assigned to higher education as their JOBS component. To assure as much consistency with the JSRP group as possible, all those in the latter group reporting fewer than twelve years of schooling were excluded from this portion of the empirical analyses. Outcomes included employment, earnings, and welfare recipiency. Two definitions of JSRP participation were included, one indicating any participation and one for program completion. JSRP appeared to increase earnings. Focusing on the most recent 11 of the 16 total quarters of data available, the average increase to earnings across quarters accruing to program participation was 8.45 percent. Focusing just on program completion yielded an estimated increase to earnings of 12.91 percent.

While there are some imperfections with this empirical work due to the approximate nature of the comparison group, the results in this paper indicate that encouraging postsecondary education for a subset of welfare

recipients might help to boost earnings capacity and therefore long-term self-sufficiency. Also, this paper shows the benefit of using readily available state administrative data to evaluate policy.

Using Administrative Data to Evaluate the Ohio JOBS Student Retention Program

1. The JSRP Program

In 1994-1995, we conducted a formal evaluation of the Ohio JOBS Student Retention Program (JSRP). The JOBS (Job Opportunities and Basic Skills) program was a component of the federal Aid to Families with Dependent Children (AFDC) program, and participation was required of AFDC recipients who met certain criteria.[1] The Ohio JSRP was an activity pursued by some JOBS program clients in Ohio to fulfill their responsibilities in order to receive aid. The JSRP provided various types of support mechanisms for aid recipients attempting to achieve independence through postsecondary education. Approximately 17,000 individuals had participated in the OHIO JSRP program between its inception in 1990 and this evaluation. For perspective, note that the average number of AFDC clients in Ohio in any month during the period of our evaluation was about 245,000 and the average number of JOBS participants in any

[1]Passage of the Personal Responsibility and Work Opportunity Act in 1996 considerably altered the landscape. The federal AFDC program, which embedded JOBS, was replaced by a block grant approach. AFDC is now referred to as Temporary Assistance to Needy Families (TANF).

month was 56,000.[2] Thus, the Ohio JSRP program served only a small segment of welfare recipients in that state.

Many suggest that the JOBS program, initiated as part of the Family Support Act of 1988, was a response to the numerous evaluations of welfare-to-work demonstration programs that showed that comprehensive programs providing education and training along with job readiness activities succeed in increasing earnings and reducing welfare dependency (Gueron and Pauly 1991).[3]

In many ways, the states' community and technical college systems are natural partners in the attempt to help welfare recipients in their transitions from public assistance to work. Historically, two-year colleges have served older and disadvantaged students and so have a tradition of providing the sort of individualized attention required to support successfully welfare recipients through to degree completion. Additionally, key support services are available

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[2]Data are for (federal) FY 1993 and come from the publication *Employment and Training Reporter*, June 23, 1994, p. 986. Note that the data indicate that the monthly average number of clients required to participate in JOBS was about 110,000, but only about 50 percent actually did participate.

[3]For example, MDRC studied California's JOBS Program (GAIN) using an experimental design and found, at the most successful site, an annual earnings increase of $271 and an annul welfare payment reduction of $281 per recipient.

at many two-year colleges, such as developmental education programs, financial aid access, and on-site child care.

Many JOBS and (federal) Job Training Partnership Act (JTPA) programs made use of the support services of two-year colleges by contracting the delivery of (classroom) adult basic skills training to community or technical colleges. But few local and state programs before Ohio's JSRP recognized the role that two-year postsecondary programs and associate's degrees can play in helping clients achieve financial independence. As long as the successes achieved by welfare-to-work programs are constrained by clients' limited educational attainment, the lifetime earnings capacity of recipients is limited. The notion underlying the Ohio JSRP was that facilitating a JOBS program participant to pursue a postsecondary program and earn a degree should overcome this constraint.

The Family Support Act, which initiated JOBS, allowed states to support postsecondary education in appropriate cases, but there was substantial variability across states as to what was deemed appropriate. JOBS programs in all but four states permitted participants to enroll in postsecondary education. However, most states imposed restrictions, such as limitations on time (two years of

support) or on the type of institution.[4] Very few states attempted programs like JSRP under JOBS. Ohio was first and was most successful in helping public assistance clients through postsecondary programs.

Some of the unique characteristics of the JSRP were as follows:

- Collaboration at the state level between the Ohio Department of Human Services and the Ohio Board of Regents
- Collaboration at the local level between County Departments of Human Services and local postsecondary institutions
- Three levels of support to the clients—initial, ongoing, and individualized
- Time-limited assistance

The JSRP was created in March 1990 by an interagency agreement between the Ohio Department of Human Services (ODHS) and the Ohio Board of Regents (OBOR). The implementation of the JSRP in such a short time after the passage of the Family Support Act was

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[4]Some critics of JOBS asserted that it had a built-in bias against postsecondary education. For example, one requirement of JOBS was that to be eligible for federal matching funds, a state was required to have a percentage of its JOBS participants enrolled in activities for at least 20 hours per week. Individual states had to undertake creative measures to overcome the fact that a student enrolled in 12 course hours at a community college must find some other JOBS-related activity to meet the remaining 8 required hours (Blumenstyk 1992).

facilitated by the financial incentives for interagency collaboration in the Act. States could use as matching funds for JOBS their higher education subsidies to public institutions for JOBS clients. But even though these financial incentives existed, the collaboration that resulted was noteworthy because it involved two agencies that had not historically worked together on many policy initiatives.

Besides the collaboration at the state level, another interesting aspect of the JSRP was the degree to which the County Departments of Human Services (CDHSs) interacted with local two-year institutions. Caseworkers at the CDHSs are the "faces" that clients associated with the AFDC system. The assessments done by JOBS staff and the marketing that they did to "sell" the JSRP were key determinants of the program's outcomes. Staffs of the postsecondary institutions supported the CDHS through client monitoring and reporting. In many cases, JSRP staff became familiar enough with clients and with the AFDC system to become "adjunct caseworkers," which the CDHS staff appreciated because it lightened their caseloads.

JSRP supported three types of services: initial, ongoing, and individualized. Common barriers that AFDC clients had to overcome in the course of their higher education were lack of self-esteem, lack of familiarity with

postsecondary institutions and campus life, and lack of career direction (clients may have lacked direction or may have had unrealistic expectations). The *initial services* of JSRP were intended to address these barriers. Either before enrollment (for new students) or concurrent with initial enrollment (for clients already enrolled) the initial services provided orientation to campuses, assessment and counseling, and life skills seminars.

Once a client had actually enrolled in classes, the *ongoing services* were intended to support the student with her/his early encounters with the academic system. JOBS clients with fragile support mechanisms were thought likely to experience academic or personal problems early in their postsecondary education that would be (or would be perceived to be) of major proportions. Through group activities (such as workshops, seminars, and group counseling) or through individual counseling, ongoing services were geared at helping clients through these "crises."

Finally, *individualized services* gave the JSRP the flexibility to support students who needed more assistance than could be provided through the initial or ongoing services. Three types of activities were funded: summer

school tuition, tutoring, or payment of course-related expenses.

The JSRP administrative rules placed a strict limitation on the timing and duration of services. The initial and ongoing services were limited to the first two semesters/three quarters of a client's attendance. This clearly signaled the transitional nature of the program. Help and support were available before and during the client's adjustment period to postsecondary schooling, but the JSRP could not become a permanent prop or source of pressure. To complete an educational program, the AFDC client must become independent enough to succeed on her/his own.

The evaluation that we undertook consisted of four separate studies. A *process study* involved interviews with state officials, local CDHS staff members, college staff members, and clients. An *impact evaluation* focused on client outcomes to answer the question of what impacts participation in the JSRP had on individuals. A *follow-up study* was conducted to supplement the process and impact evaluations by collecting detailed information about clients who had left the welfare roles. Finally, a *cost-benefit study* was completed to evaluate the cost effectiveness of JSRP. This paper focuses on the impact evaluation. The full evaluation is documented in Hollenbeck and Kimmel (1996).

2. Impact Analysis

It was infeasible to use an experimental design (i.e., randomly assigning eligible individuals into JSRP or a control group) to evaluate the impacts of JSRP. However, we did use data from the CRIS-E automated client information system to construct a comparison group of college students against whom we could compare JSRP students. This permitted us to undertake a *net impact analysis*, which attempted to answer the question of how the outcomes for JSRP participants differed from what would have happened *if the JSRP program did not exist*. This methodology assumes that the comparison group and JSRP individuals are identical except for participation in the program.

The data used for these analyses were drawn from three different sources. The first is JSRP administrative data. Each two-year college that participated in the program was responsible for maintaining files about the activities of each participant. These files were transmitted to a centralized location annually and were compiled into a JSRP management information system. The second source is the CRIS-E data system maintained by the Ohio Department of Human Services. This complex data system maintained a record of all interactions with and benefits paid to all public

assistance recipients in the state. It includes data from intake forms, assessments, sanctions, benefit payment requests, closings, and changes-in-circumstances forms. The third is the Ohio Bureau of Employment Security (OBES) wage-record data. Matching data across these three different data sources was complex, and a visual description of the process is given in figure 1.

2.1 JSRP Program Participants

The means for several demographic characteristics describing JSRP participants are given in table 1. Through spring 1994, there was a total of 16,636 JSRP participants. On average, they were almost 30 years of age at the start of JSRP, with approximately 85 percent of participants in their twenties or thirties. Twenty-one percent of the participants were African-American, while about two percent were Hispanic. Reflecting the preponderance of females on the welfare rolls, most (almost 90 percent) participants were females.

Using the entire universe of JSRP participants in our analyses would have been inappropriate because of a right-censoring problem. The sample contained individuals who entered JSRP shortly before the evaluation and thus would have continued to receive the "treatment" (i.e., participate

in JSRP activities) after our data ended. This group of individuals had less opportunity to earn college credits and had fewer program dollars spent on it. To handle this problem, all participants were divided into cohorts based on dates the individuals received JSRP services. If the individual received JSRP services in more than one cohort, that individual was assigned to the latest cohort. The cohorts are listed below, and the demographic variables from the first table are disaggregated by cohort in table 2.

Cohort 1: received services between 3/90 and 6/91.
Cohort 2: received services in summer 91 or academic year 91-92.
Cohort 3: received services in summer 92 or academic year 92-93.
Cohort 4: received services in summer 93 or academic year 93-94.
Cohort 5: JSRP participation incomplete at end of academic year 93-94.

Table 3 provides descriptive data concerning credits earned and grade point averages. These data are reported by the colleges, so they should be quite accurate.[5] As might be expected, the range of values for earned credits is fairly wide. One-third of the students earned fewer than 25 credits,

[5]We attempted to obtain official transcripts from all JSRP and comparison group members but were unable to do so within the resources of the project.

while one-third earned more than 40 credit hours. The mean grade point average (GPA) is 2.62.[6] The percentage of each cohort falling in each grade range (based on earned GPA) is also shown in table 3. Overall, nearly 19 percent of the students earned an average grade in the A range. The percentage of each cohort earning grades in the A range rose slightly but steadily from cohort to cohort. About 43 percent of the students earned an average grade of B, which means that over 60 percent of the JSRP participants earned A's or B's. Only about 10.5 percent earn an average grade of D or F.[7] As the table shows, a small percentage of the students earn straight A's—a 4.0 grade point average.

Table 4 presents data on enrollment by program of study. JSRP students clustered in a limited number of programs. These were (with the percentage of JSRP participants reporting each) allied health (17.3 percent), business and office (10.9 percent), health sciences (10.9 percent), business and management (7.5 percent), liberal/general studies (7.1 percent), computer and

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[6]This calculation excludes the 42 percent of the participants for whom the GPA is recorded as zero. We presume these data are missing and are not "legitimate" zeroes. Clearly, the JSRP data files underreported this data item.

[7]These averages might be overstated because the zero GPAs have been excluded.

information systems (5.2 percent), engineering-related technologies (4.3 percent), and protective services (3.9 percent).

JSRP participants differed substantially by the type of assistance they received: ADC-R (AFDC regular, i.e., single parent), ADC-U (AFDC for a two-parent family with an unemployed parent), or FS (food stamps) only. The means of variables for individuals having these assistance types are given in table 5. The asterisks indicate a statistically different mean for a given variable (ADC-R versus ADC-U, or ADC-R versus FS). It is clear that the three program types are composed of very different demographic groups.

2.2 Who "Completes" JSRP?

The JSRP offered support for three college quarters (or two semesters). It might be expected that the most positive impacts would accrue to those who participated for all three quarters, so we used participation in JSRP for three or more quarters as an indicator of program completion. It is important to keep in mind that eligibility for the program is determined by welfare eligibility; potentially, some program "dropouts" could have been continuing with their schooling but had simply become ineligible for JSRP due to

an improvement in personal living conditions, perhaps from employment or marriage. Neither employment nor marriage would be considered negative outcomes. The percentages of JSRP participants who "completed" the program (participated in three quarters) by cohort are given in table 6. About one-fourth of cohort 1 completed JSRP, but completion rates for cohorts 2-4 increased to about 60 percent.

Descriptive statistics are given in table 7 for completers versus noncompleters. The two groups were of the same approximate age, but the completers were more likely to be white (77 percent versus 75 percent) and less likely to be male (10 percent versus 14 percent). The gender difference may be explained by the fact that males are most likely to be in the program due to short-term unemployment, and so were more likely to gain new employment, thereby losing JSRP eligibility.

Completers had a significantly higher average years of education at the time of the opening of the CRIS-E record (11.34 versus 10.96 years of education), and completers had a higher initial math grade-level equivalency, exceeding noncompleters by more than half a year (6.62 versus 6.06). In terms of family and public assistance case characteristics, completers had slightly more children on average than

noncompleters, and the youngest child of completers was slightly older at the time of the opening of the CRIS-E record (5.00 years old versus 4.92). Completers received slightly more in monthly AFDC payments at the opening of the AFDC record, as well as at the most recent AFDC record. However, the averages for both groups fell from the opening to the most recent. Those completing the JSRP were thirteen percentage points more likely to have had access to their own transportation.

For those participants for whom the CRIS-E file reported some employment, program completers worked more hours per month (118 versus 116) and for a higher hourly wage ($5.80 versus $5.44). Finally, the table shows that program completers had a larger number of college credits while in JSRP (46.25 versus 18.02), and a higher average grade point average (2.68 versus 2.50).

Overall, it appears that the program completers should have enjoyed a labor market advantage over those individuals who did not participate in the program for a year, particularly given their increased access to transportation and higher wages. Consistent with this, they tended to be better students, having more education from the beginning of the AFDC record, testing better in math, and then performing better in school while in JSRP.

2.3 Employment and Earnings

The purpose of merging the JSRP microdata, which had been supplemented with the CRIS-E data, with the wage-record data was to be able to examine earnings and employment outcomes. Table 8 summarizes these data. The first column reports the percentage of individuals from a cohort who were employed in any quarter (through the second quarter of calendar 1995, which we denote as 95:2) following their JSRP program participation. The employment rate for a cohort is the number of participants having earnings in some quarter following their JSRP participation divided by the total number of participants in the cohort. This employment rate is nearly 70 percent across all cohorts, and over 80 percent for the first cohort. Employment rates would be expected to be higher for the earlier cohorts given that they have had more exposure time after their participation in JSRP to gain this employment.

The second column of table 8, from the wage-record data, gives the average post-JSRP quarterly earnings for those JSRP participants who became employed. For individuals with more than one quarter of employment after JSRP, the most recent quarter of employment was used. Quarterly earnings were the highest for the earliest cohorts ($2,484 and $2,351 for the first and second cohort,

respectively), reflecting wage growth over time. On average, the quarterly earnings exceeded $2,150.

The third column gives the percentage of each cohort employed in the most recently available quarter of wage data (95:2). This is distinct from the previous columns because many of those JSRP participants who worked at least once after exiting the JSRP program were not employed in the most recent quarter. The employment rate reported in the third column is one way to gauge the employment retention of program participants. Nearly one-third of JSRP participants who became employed sometime after they completed JSRP were not employed in the three months that comprise 95:2. Of course, the flipside is that a substantial percentage of each cohort was employed in the most recent quarter. For cohort 1, 56.0 percent were employed, and the rates generally fell throughout the cohorts down to 43.7 percent employed cohort 4. Finally, the fourth column of the table shows the average earnings in the most recent quarter of data. The average quarterly earnings ranged from a high of $3,240 for the first cohort to $2,240 for the most recent complete cohort. Overall, the average quarterly earnings were approximately $2,700. This would correspond to an hourly wage of $7.50 for individuals who average 120 hours per month.

Table 9 shows the change in quarterly earnings of JSRP participants from before their participation to after exiting the program, disaggregated by cohort. For the first cohort (individuals who had been out of JSRP the longest), earnings grew by $1,092 from the earnings received prior to participating in JSRP. This increase reflects nearly a 50 percent increase in earnings. In the following cohorts, earnings growth is somewhat lower, reflecting the increasingly shorter time period following program completion. Still, even in the most recent cohort, this change represents a nearly 35 percent increase in earnings.

Interpreting employment and earnings outcomes by program completion status (table 10) must be done cautiously, since there are positive circumstances under which an individual might choose to end participation in the program (getting a good job) or positive circumstances under which an individual might become ineligible for program participation (via marriage, for example). The table shows that about 65 percent of program completers worked at least once after completing JSRP, while a large percentage of program noncompleters, 71 percent, worked after exiting JSRP. Therefore it seems likely that many of the JSRP program participants who exited prior to program completion did leave the program to take a job.

However, those exiting JSRP before completing the program were not higher wage earners. On average, program completers earned $2,233.46 a quarter in the most recent quarter for which they had earnings.[8] Comparable earnings for noncompleters averaged only $2,067.39 a quarter. This difference reflects a statistically significant 8 percent higher earnings for the program completers. The table also shows the percentage employed and average earnings by cohort. The earlier cohorts have had more time after exiting JSRP to have been employed, so their employment rates are higher. Also, due to their greater work experience, their wages tend to be, on average, higher.

2.4 Multivariate Models of Employment and Earnings

The descriptive analyses presented so far have been univariate. A more meaningful analysis compares characteristics or outcomes while simultaneously controlling for differences in other characteristics. Because of their centrality to the evaluation, employment and earnings outcomes were analyzed using regression analysis.

To determine the factors that explain why some JSRP participants match to the wage-record file (i.e., were

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[8]Averages do not include 0's.

employed), we estimated a regression model with a dependent variable that answered the following yes/no question: Does the JSRP participant have positive earnings in any quarter after their JSRP participation is complete? The dependent variable (employment) equaled 1 when the answer to that question was yes, and 0 when the answer was no. We estimated this regression with a probit model. Because the length of time between JSRP completion and the most recent quarter of available data influenced the likelihood of being employed, the regressions included cohort dummies. (This equation was also estimated separately by quarter, but the results were virtually identical to the findings described here, and the jointly estimated results are less cumbersome to discuss.)

One might imagine that many factors help to explain the employment probability for JSRP participants. Based on economic reasoning and data availability, we selected the following independent variables: 0-1 variable that equaled 1 to indicate LEAP[9] participation; current number of children (total); last GPA; total credits earned; age at end of last

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[9]LEAP stands for Ohio's Learning, Earning, and Parenting Program, an incentive-based approach to getting young recipients without a high school degree to return to school. Benefits were increased as long as the recipient was making progress toward a high school diploma and were decreased if the recipient did not attend school.

term; 0-1 variable that equaled 1 for nonwhite; 0-1 variable that equaled 1 if male; 0-1 variable that equaled 1 if ever sanctioned; 0-1 variable that equaled 1 if received transitional Medicaid health insurance coverage; education grade level at the last assessment; and the average county wage. The latter is included to control for the strength of the local economy and the expected payoff to search activities. Note that the policy variables are LEAP participation, sanction, and Medicaid dummies.

This regression for the probability of post-JSRP employment, written in summary form, follows:

$$\begin{aligned} Probability = {} & \beta_0 + \beta_1 LEAP + \beta_2 KIDS \\ & + \beta_3 GPA + \beta_4 CREDITS + \beta_5 AGE \\ & + \beta_6 NONWHITE + \beta_7 MALE \\ & + \beta_8 SANCTIONED + \beta_9 MEDICAID \\ & + \beta_{10} EDUCATION + \beta_{10} COUNTYWAGE \end{aligned}$$

Table 11 shows the signs and significance of the probit coefficients. The sign of the probit coefficient indicates whether the variable in question has a positive or negative effect on the probability of employment. Having been in LEAP prior to JSRP had a positive effect on the probability of employment, but this effect was not

statistically different from zero. Having more children had a negative effect on the probability of employment, as did having earned a higher GPA or more credits while in JSRP. The latter two probably affected employment negatively because those students are more likely to remain in school. (Unfortunately, school enrollment after JSRP is not observed in our data.) The same result occurred for older students and for those with higher levels of overall education—they were less likely to be employed.

JSRP participants who were nonwhite or male were more likely to be employed, as were those who had been sanctioned at least once while receiving public support. Participants who had transitional Medicaid coverage available, so that they could continue to receive coverage during their first months of work, were more likely to be employed. Finally, living in a county with a higher average wage positively affected the probability of employment.

Next, an earnings regression equation was estimated by OLS. Earnings was defined as the quarterly earnings observed in the most recent quarter with positive earnings (post-JSRP). The explanatory and control variables were

MILLS;[10] age at end of last term; educational grade level, last assessment; math grade level, last assessment; reading grade level, last assessment; 0-1 variable that equaled 1 if nonwhite; and 0-1 variable that equaled 1 if male.

This regression equation can be written in summary form below (without the error term).

$$\begin{aligned} Earnings = {} & \beta_0 + \beta_1 AGE + \beta_2 EDUCATION + \beta_3 MATH \\ & + \beta_4 READING + \beta_5 NONWHITE \\ & + \beta_6 MALE + \beta_7 MILLS \end{aligned}$$

As can be seen in table 12, being older, having more overall education, or better math skills were all associated with higher wages. Surprisingly, having higher reading skills was associated with lower wages. As is commonly observed in aggregate data, being male was associated with having higher earnings, even after controlling for other factors thought to influence wage levels. Similarly, being nonwhite was associated with having lower wages, also a standard

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[10]Using the results of the probit regression, a special variable called MILLS was constructed. This variable is useful for its statistical ability to control the effects of having any earnings at all on the level of earnings. That is, because earnings regressions can be estimated only for those having some positive earnings and because those with low potential earnings are less likely to work at all, this variable helped to eliminate any bias that might have arisen from this estimation using earners only.

finding. Both of these results are either due to omitting important variables in the wage equation or to discrimination.

2.5 Net Impact Analysis

All of the analyses in the previous sections examined JSRP participants only. To attempt to gauge the impact of JSRP on participant outcomes, we turn to a net impact analysis, which we conducted using a comparison group analysis as described above. In constructing the comparison group, we attempted to select a population that was as close as possible to JSRP participants in personal characteristics, except that members of the comparison group did not have the benefit of JSRP services. The group that we selected were JOBS clients (from the CRIS-E file) who had at least 12 years of schooling and were assigned to higher education as their JOBS component. To increase comparability, we deleted from the JSRP sample individuals who had less than 12 years of education prior to JSRP. (The appendix to this paper compares and contrasts JSRP participants in the first four cohorts who do and do not have at least 12 years of schooling prior to participation.) To determine the net impact of JSRP, we assumed that any differences in employment and earnings outcomes between JSRP

participants who had at least 12 years of schooling and the comparison group could be attributed to JSRP.

Mohr (1992) refers to the methodological approach that we have used as the random comparison group design where the comparison group is the full population. The net impact analysis computes net impacts as differences from the population norm (employment and earnings outcomes for AFDC recipients who had a high school diploma and were referred to higher education as their JOBS component). However it should be noted that selection into JSRP was not explicitly regulated nor systematic across or within counties. This raises the specter of a selection bias confounding our impact estimates. We control for selection bias in this paper through regression adjustment. Other methods that could have been used to control for selection on observables would have been modeling the selection process and using the Mills ratio in the outcome equation (Barnow, Cain, and Goldberger 1980); construction of a matched-pair comparison group (Rubin 1973; Heckman and Hotz 1989); stratified sampling of the comparison group (Rubin 1979); or using the propensity score (Rosenbaum and Rubin 1985; Dehejia and Wahba 1995).

A simple test of the comparability of the JSRP sample and the comparison sample is a *t*-test of difference in

means between the two groups. Mean values for the selected group of program participants, plus the comparison group, are given in table 13. Although nearly every variable had a statistically different mean value, the absolute magnitudes of those differences were not very large in most cases. Program participants were more likely to be white (74 percent versus 61 percent), less likely to be single, and more likely (by nine percentage points) to have access to their own transportation. Finally, JSRP participants had completed more years of education at the time their AFDC case files were opened, and scored higher in math testing at that time.

The purpose of the net impact analysis is to compare outcomes: earnings, employment, and welfare recipiency for the JSRP and comparison group members. Mean employment rates and earnings levels are shown in table 14. The first row of the table compares means for one measure of employment, the percentage of observations with positive earnings in at least one quarter of wage-record data since 1990, or for the JSRP participants, positive earnings in at least one quarter after exiting the JSRP program. This latter screen may help to explain the lower employment rate for JSRP participants. While 92 percent of the comparison group appeared in the wage-record data at some point, only 68 percent of JSRP participants had become employed after

participating in JSRP. The second row of the table refers to the earnings in the most recent quarter. Despite lower employment rates, the JSRP participants earned on average higher quarterly earnings, $2,092 versus $1,777, an 18 percent difference.

The last two rows provide data about a more consistently measured outcome: employment in 95:2. This is the most recent earnings data that we were able to obtain during the evaluation. Notice that JSRP participants had slightly lower employment rates (46 percent versus 48 percent). However, JSRP participants had higher quarterly earnings, $2,576 versus $2,484. This is a 3.7 percent difference in earnings. The last two rows of the table provide the best comparison between the JSRP participants and comparison group members, because all the JSRP participants have exited the JSRP program and nearly all of the comparison group have completed at least some higher education. Using these data, we find an unadjusted impact estimate of -4.2 percent for employment and 3.7 percent for earnings.

The receipt of any welfare support (of any program type), using the most recently available data (1995, quarter 2), was an additional program outcome that could be contrasted across the groups. Summary data are given in

table 15. Almost 40 percent of JSRP participants received some form of welfare support in 95:2 according to the administrative data, but approximately 1.6 percent more of the comparison group received support. The JSRP participants who were on the rolls received a larger benefit, on average, ($347.71 versus $336.99) but this is mainly due to the slightly larger family size for the JSRP participants. For those individuals employed in the second quarter of 1995, significantly fewer JSRP participants continued to receive welfare support than the comparison group (23.1 percent versus 27.1 percent).

Regression adjustment analysis allows us to estimate the impact of program participation on employment and earnings conditional on observable characteristics. To accomplish such an adjustment, we merged the JSRP sample and the comparison group sample and estimated employment and earnings regressions. Using the same basic models as described earlier, probit employment equations and OLS earnings regression equations were estimated on a quarter-by-quarter basis. One additional variable, for JSRP participation, was included in both regressions. This variable was defined in two ways, and each regression was estimated twice (table 16, JSRP1). First, it was set equal to 1 for any program participant and set to 0 for the

comparison group. Then, it was set equal to 1 for any JSRP participant who completed the program (i.e., participated for at least three quarters) and set to 0 for noncompleters as well as for the comparison group (table 16, JSRP2). These variables, once other factors are controlled in the regression, show the impact of program participation on earnings. Each quarterly regression was estimated using the first definition and then re-estimated using the second definition.

The signs and magnitudes of the coefficients in the employment probit equations closely approximated those reported for the JSRP sample only, so they won't be repeated here. The signs and significance of the impact estimates are provided in table 16. Note the pattern that coefficients are significantly negative in the early quarters (many of the comparison group members are employed, whereas none of the JSRP participants are employed by definition). Then the coefficients become insignificant and "flip" signs for the broader definition of participants. The point estimate for the derivative of the impact estimator for 95:2 is -0.5 percent. Recall that the unadjusted estimate from table 14 is -4.2 percent. The regression adjustment

suggests that the treatment group tended to be "more disadvantaged" from an employment perspective.[11]

An issue that we had to address for the earnings outcome was the definition of earnings. Recall that for the JSRP participant regression, we used post-JSRP quarterly earnings. Now the estimation sample combines JSRP participants with the comparison group. For the latter group, we did not have any data concerning dates of postsecondary education participation or completion. We decided, therefore, to use all earnings for the comparison group, but to only use earnings for the JSRP participants after the third quarter of participation.[12,13] Unlike in the earnings models described earlier, now we converted earnings to their natural logarithms. As a consequence of this conversion, the coefficient associated with the JSRP variables is a direct estimate of the percentage change in earnings accruing as a result of JSRP participation. The estimates of program

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[11]This emanates from race (whites have a lower marginal likelihood of being employed); gender (females have a lower marginal likelihood of being employed); and receiving transition Medicaid.

[12]The implication of this is that the earnings for the comparison group, at least in the earlier quarters, may or may not have been observed after participation in postsecondary education.

[13]Had we been able to retrieve postsecondary transcripts, we would have been able to construct comparable outcome periods.

effects resulting from these earnings regressions are given in table 17.

Sixteen quarters of regressions are presented, starting with the third quarter of 1991 and finishing with the second quarter of 1995. As can be seen in the table, results for the first five quarters were inconclusive for both definitions of the JSRP variable. However, from the fourth quarter of 1992 through the end of the data (11 straight quarters), the coefficients associated with both JSRP variables were positive and statistically significant, implying that JSRP participation (or completion) was associated with higher earnings. Considering just the final 11 quarters and using the first JSRP variable definition (program participation), the average boost to earnings across quarters accruing to program participants was 8.45 percent. As anticipated, using the more restrictive JSRP variable definition (program completion) resulted in a larger estimated boost to earnings, 12.91 percent. Converting this latter percentage to an approximate dollar figure implies that program completion was responsible for, on average, $288 of program completers' quarterly earnings. Both impact estimates were quite large and imply that participation in (or completion of) the JSRP program had substantial affects on the individual students' earnings capacity. This implies that the welfare

rolls would have been reduced and tax payments would have increased.[14]

The unadjusted impact on earnings was 3.7 percent (table 14) in 95:2. The regression- adjusted impact on earnings (not shown) was 3.3 percent. This small decrease suggests that the JSRP group was relatively "more advantaged" from an earnings perspective.[15]

These regressions might have overestimated the actual boost to earnings accruing to JSRP participants. This overestimation may have occurred because of a deficiency in the data. For the JSRP participants, we could identify exact dates of program participation. We could not determine if participants continued with their postsecondary education beyond the time frame of the JSRP, but we know for sure that the quarterly earnings data were measured *after* participation in the JSRP. For the comparison group, however, we do not know precise dates of participation in postsecondary education. In other words, whereas we have identified a comparison group that undertakes (at some

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[14]Using all 16 quarters of estimates, the average earnings impact for JSRP1 and JSRP2 would be 3.72 percent and 8.94 percent, respectively.

[15]This result occurred because whites (who were relatively predominant in the JSRP group) have an earnings advantage.

point) schooling comparable to that of the JSRP participants, we cannot determine if any given quarter of earnings occurred before, during, or after the schooling took place.

Economic theory suggests that investments in human capital (i.e., improving one's education) lead to improvements in earnings, but for the comparison group, we could not determine if that investment took place prior to any specific quarter of earnings data. However, it is not reasonable to expect that the comparison group enrolled in higher education later in the data than the JSRP participants. That is, it is likely that the comparison group could be stratified into the same general "time cohorts" as the JSRP participants, with regard to the timing of their postsecondary education. Therefore, we argue that there is very little, if any, overstating of the program effects estimated by these regressions, because the most consistent results occurred in the later quarters. As table 17 shows, the estimated boosts to earnings persisted throughout every quarter from the 6th quarter to the end.[16]

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[16]However, by focusing on the later quarters of earnings, we observe more and more earnings observations for JSRP participants that took place several quarters after program completion. That is, many participants had been out of the program (and possibly working) for several quarters. Previous economic studies of the earnings effects of human capital investment have shown that the boost to earnings from schooling affects the earnings received immediately after leaving school,

3. Conclusions and Extensions

Our evaluation of the JSRP used administrative data from the program itself, CRIS-E, and the OBES wage-record data. The JOBS clients who participated in JSRP experienced significant levels of success. On average, they earned 33.04 credits of college work. Their grade point average was 2.62; 60 percent of students earned grades in the A or B range. Defining program completion as having received services for three or more quarters resulted in the finding that 60 percent of participants in the three most recent full cohorts completed their JSRP services.

Approximately 70 percent of program participants had some post-JSRP employment, and about 50 percent were employed in the most recent quarter of available data (95:2). For the first two cohorts, average quarterly earnings in the

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but also affects the rate of growth of that earnings. So, for JSRP participants who participated in the earlier cohorts, one would expect their earnings to be higher than individuals who had participated in postsecondary education but who had not been working very long. Again, however, there is no reason to expect that the JSRP participants would have been out of school longer than the comparison group. In any event, if it is the case that the JSRP participants completed their schooling earlier, thus entering the labor market earlier and enjoying more on-the-job wage growth, this effect would itself be a positive outcome from the JSRP. That is, participation in JSRP would have shortened the time it takes a college student to complete his/her schooling.

95:2 quarter were $3,240 and $3,001, respectively. For individuals in the four complete cohorts that we analyzed who were employed both before and after JSRP participation, quarterly earnings growth ranged from $1,092 for the first cohort to $688 in the fourth cohort.

The unadjusted net impact analyses showed that JSRP participants were slightly less likely to be employed in 95:2 (46 percent versus 48 percent for the comparison group), but JSRP participants received 3.7 percent higher quarterly earnings. Employment and earnings regression-adjusted estimates showed that JSRP participation eliminated the employment disadvantage and boosted quarterly earnings by approximately 8.5 percent. Completing JSRP caused an estimated 13 percent increase in quarterly earnings, once other factors were controlled. We did not analyze extensively welfare recipiency as an outcome, but in an unadjusted comparison of means, JSRP appeared to reduce recipiency as well. Any conclusions that can be drawn from these findings are subject to limitations in the data. Still, it seems safe to say that JSRP participation tended to boost earnings. The site of the adjusted earnings impact, particularly for program completing, is a very strong positive result for the program.

In this paper, we used merged administrative data for evaluation purposes. Another use of these data might be in program operations. In the new policy regime under the Personal Responsibility and Work Opportunity Act, merged administrative data can be a useful tool for state administrators and policy makers in finding ways to improve the effectiveness of their new approaches. In fact, the Upjohn Institute in conjunction with the U.S. Department of Labor is developing and implementing such a tool: we are developing a system of profiling welfare-to-work participants as to their likelihood of finding jobs. By using a statistical model and merged administrative data, we will identify client characteristics associated with high likelihoods of having labor market difficulty. This will allow agencies to identify, at the time of intake, those individuals who are most likely to benefit from intensive case management, training, or other services. Thus, local agencies can tailor programs to meet the varied needs of welfare-to-work participants and use limited resources more effectively.

Currently, welfare-to-work programs such as Michigan's Work First Program provide the same services to all participants, regardless of their past work history and skills. However, some participants who have past work

experience or other skills may be able to find employment without additional assistance, while others with little or no work experience may need more job search assistance than is now provided. By targeting such services, resources can be delivered more effectively.

The profiling model will be estimated through logit regression. The model will estimate the effects of personal characteristics, past work history, and local economic conditions on the probability of employment. These estimates will then be applied to the characteristics of welfare recipients entering the program to assign each participant a probability of finding employment. The type and amount of case management and support services provided to each participant will be determined by the assigned probability. In essence, profiling serves as a surrogate for caseworkers. In addition to designing and implementing a pilot project, the Institute will evaluate the effectiveness of profiling by using the information collected to implement profiling as well as information collected from welfare files.

Merged administrative data can and will be used more extensively in the future for state initiatives under welfare reform, as resources become tighter and tighter. Operational uses of data such as our profiling pilot project

will facilitate the effective management of programs. Evaluative uses of the data will provide policymakers with evidence about what works.

Appendix

Derivation of the Comparison Group and Comparable JSRP Participants

Appendix

Our intent in constructing the comparison group from the CRIS-E file was to include all JOBS clients who were assigned to be in higher education and who were not also in the JSRP MIS. We accomplished this by selecting all the clients in CRIS-E who had a JOBS assessment record showing 12 or more years of education followed by a JOBS assignment record to education and training.[17] Subsequent assessment and employment records for the case could be of any type, but all other record types had to be of the program group ADCR or ADCU. We allowed for assessment and employment records other than ADCR or ADCU to avoid excluding anyone who was likely to be in higher education.

Of those JSRP participants having data on the CRIS-E history file, only 76.4 percent met the selection criteria imposed on the control group in terms of education and record types. A comparison of JSRP observations who did and did not meet the selection criteria is given in table A-1.

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[17]The file structure for CRIS-E was that each client observation was composed of multiple records. Some records were assessment records; others were assignment records; still others included sanction records, employment records, benefit records, Medicaid records, and so forth. There were variable number of records and types of records for each observation.

The asterisks identify means that are statistically different from the full JSRP sample means.

Note that 11,581 JSRP participants met the selection criteria, while 3,586 did not. Those meeting the control's criteria tended to be younger, were more likely to be African-American, more likely to be single, and more likely to have longer ADC durations. Additionally, those matching the criteria, on average, had more education at the first assessment as well as at the last assessment. However, the difference in mean education between the two groups narrowed between the two assessments. Those matching the control's criteria were 25 percent more likely to have received transitional Medicaid benefits. Finally, this group earned more credit hours during JSRP and received a higher grade point average.

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Table 1
Means of JSRP Participant Variables
(standard deviation in parentheses)

Variable	Full Sample	Sample of Complete Cohorts[a]
No. of individuals	16,636	15,597
Age at start of JSRP	29.75 (6.98)	29.80 (6.98)
% African-American	21.2 (40.8)	21.3 (40.9)
% White	76.3 (42.5)	76.1 (42.6)
% Hispanic	1.9 (13.5)	1.9 (13.8)
% Male	12.2 (32.7)	12.1 (32.6)

[a]JSRP participants excluding final, incomplete cohort.

Table 2
Means of Variables, by Cohort
(standard deviation in parentheses)

	Cohort			
Variable	1	2	3	4
No. of individuals	1288	4033	4979	5296
Age at start of JSRP	30.40 (7.04)	30.02 (6.85)	29.99 (6.97)	29.30 (7.04)
% African-American	21.4 (41.0)	22.7 (41.9)	20.9 (40.7)	20.5 (40.3)
% White	77.3 (41.9)	74.5 (43.6)	76.5 (42.4)	76.7 (42.3)
% Hispanic	1.0 (9.6)	1.8 (13.2)	2.1 (14.3)	2.1 (14.5)
% Male	15.6 (36.3)	12.8 (33.4)	12.4 (32.9)	10.6 (30.8)

Table 3
College Credits and Grades, by Cohort

Characteristic	Cohort 1	Cohort 2	Cohort 3	Cohort 4	All[a]
Credits[b]	24.01 (15.98)	34.52 (17.00)	34.48 (15.62)	32.64 (14.20)	33.04 (15.77)
GPA	2.60 (0.87)	2.63 (0.82)	2.62 (0.87)	2.64 (0.88)	2.62 (0.86)
Grade Distribution (%)					
GPA ≥ 3.50 (A)	16.7%	17.6%	18.9%	19.6%	18.6%
2.50 ≤ GPA < 3.50 (B)	44.9	44.1	42.4	42.4	43.1
1.50 ≤ GPA < 2.50 (C)	26.5	29.6	27.4	27.1	27.8
0.50 ≤ GPA < 1.50 (D)	10.4	7.9	10.0	9.4	9.2
GPA < 0.50 (F)	1.5	0.9	1.2	1.4	1.2
Percentage with GPA = 4.00	3.4%	4.2%	4.4%	5.6%	4.7%

[a]JSRP participants through summer '94, excluding final, incomplete cohort.
[b]Excludes observations where credit equals one.
Note: All GPA statistics omit approximately 42 percent of the observations for which data are missing.

Table 4
Enrollment Percentage, by Program of Study and by Cohort

Program of Study	Cohort 1	Cohort 2	Cohort 3	Cohort 4	All
Business & management	8.6	8.2	6.5	7.7	7.5
Business & office	15.9	12.2	10.1	9.6	10.9
Computer & information systems	3.8	5.2	5.2	5.7	5.2
Education	2.0	3.0	2.6	2.6	2.6
Engineering-related technologies	5.4	4.6	3.9	4.1	4.3
Allied health	15.7	17.7	17.3	17.5	17.3
Health sciences	7.8	10.4	11.7	11.4	10.9
Law	1.6	1.8	2.1	2.3	2.0
Liberal/general studies	9.0	5.1	6.4	8.8	7.1
Protective services	5.0	3.6	4.1	3.5	3.9
Public affairs	1.4	2.1	2.7	3.2	2.6

Table 5
Means of Variables across Program Type

Variable	ADC-R	ADC-U	FS
Personal Characteristics			
Age	28.36	29.85*	28.74
% White	69.87	90.85*	76.70*
% African-American	28.10	6.45*	21.55*
% Male	2.54	47.88*	15.32*
% Married	10.52	83.75*	36.32*
% Divorced	31.29	4.08*	24.07
% Single	44.08	7.66*	29.54*
Educational Background			
Years of education completed at time of AFDC opening	11.47	11.50	11.54
Math grade level equivalency	6.30	6.81*	6.79*
Family and Case Characteristics			
Current no. of children	1.79	2.06*	1.79
Welfare duration (days)	1,038.07	881.05*	779.38*
% LEAP	1.48	0.77*	2.08
% Sanctioned	18.29	23.36*	13.23*
% Transit. Medicaid	18.20	20.44*	22.65*
% Own vehicle	45.58	71.06*	57.62*
Employment (prior to or while on assistance)			
Hours worked per month	115.52	126.50*	118.62
Months previous work experience	39.16	55.71*	45.50*
College/JSRP Experience			
College credits, as of latest JSRP quarter	34.08	33.62	30.42*
GPA	2.62	2.70*	2.61

*Indicates a statistically significant difference from the value for ADC-R.

Table 6
Percentage of JSRP Participants with Three or More Quarters, by Cohort

Cohort	Percent Completing
1	25.1%
2	59.2
3	62.0
4	58.8

Table 7
JSRP "Completers" versus "Noncompleters"*

Characteristic	Completers	Noncompleters
Personal Characteristics		
Age	29.87	29.71
% White	77.02*	74.89
% African-American	20.35*	22.51
% Male	10.45*	14.37
Educational Background		
Years of education completed at time of AFDC opening	11.34*	10.96
Math grade-level equivalency	6.62*	6.06
Family and Case Characteristics		
No. of children @ AFDC opening	1.67*	1.57
Age youngest child @ AFDC opening	5.0*	4.9
AFDC monthly benefit, 1st payment	$328.09*	$321.19
AFDC monthly benefit, last payment	$321.05	$313.15
% own vehicle	62.0	49.0
Employment		
% employed while on AFDC	27.06	26.92
Hours worked per month	118.4	116.3
Hourly wage	$5.80	$5.44
College/JSRP Experience		
College credits, as of latest JSRP quarter	41.25*	18.02
GPA	2.68*	2.50

*Completers are defined as participants for three or more quarters.
*Indicates a statistically significant difference between completers and noncompleters.

Table 8
Post-JSRP Employment and Quarterly Earnings, by JSRP Cohort

Cohort, (End Date)[a]	Any post-JSRP Employment (%)	Average Most Recent Post-JSRP Earnings ($)	Employment in 95:2 (%)	Average Earnings in 95:2 ($)
1,(91:3)	81.8	2,484	56.0	3,240
2,(92:3)	77.9	2,351	56.5	3,001
3,(93:3)	70.1	2,130	52.7	2,654
4,(94:3)	54.9	1,868	43.7	2,240
Cohorts 1-4	67.9	2,159	50.9	2,689

[a]End date is given as year:quarter.

Table 9
Earnings Growth, by Cohort

Cohort	No. of individuals with earnings	Change in Earnings from Pre- to Post-JSRP ($)
1	534	1,092*
2	2,232	945*
3	2,890	730*
4	2,154	688*

*Statistically significant at the 5 percent level.

Table 10
Summary of Most Recent Post-JSRP Wage

Cohort	Completers		Noncompleters	
	Employed (%)	Earnings ($)	Employed (%)	Earnings ($)
All	65.4	2,233.46*	71.3	2,067.39
1	84.8	3,123.17*	80.8	2,259.44
2	77.1	2,478.37*	79.1	2,170.99
3	68.6*	2,201.96*	72.5	2,019.26
4	51.4*	1,841.38	60.0	1,900.09

*Statistically significant at the 5 percent level.

Table 11
Results from Employment Probit

Variable*	Coefficient Sign	Level of Significance
INTERCEPT	+	1%
LEAP	+	No
No. of KIDS	-	1%
GPA	-	1%
CREDITS	-	5%
AGE	-	1%
NONWHITE	+	1%
MALE	+	1%
SANCTION	+	1%
MEDICAID	+	1%
EDUCATION	-	1%
COUNTY WAGE	+	1%

*Cohort dummy variables were also included but none were statistically significant.

Table 12
Results from Quarterly Earnings Regression Equation

Variable[a]	Coefficient Sign	Level of Significance
INTERCEPT	+	No
MILLS	-	1%
AGE	+	1%
EDUCATION	+	1%
MATH	+	1%
READING	-	5%
NONWHITE	-	1%
MALE	+	1%
R^2	.0452	

[a]Cohort dummy variables were also included but none were statistically significant.

Table 13
Means of Variables for JSRP Participants
and the Comparison Group

Variable	JSRP	Comparison Group
Personal Characteristics		
Age	28.66*	28.91
% White	74.1*	60.9
% African-American	23.8*	36.4
% Hispanic	0.02	0.02
% Male	11.4*	14.6
% Married	25.3*	24.1
% Divorced	26.0*	20.8
% Single	36.6*	42.1
Educational Background		
Years of education completed at time of AFDC opening	11.47*	10.83
Math grade level equivalency	6.43*	5.46
Family and Case Characteristics		
No. of children @ AFDC opening	1.61*	1.55
Age youngest child @ AFDC opening	4.76*	4.88
Current no. of children	1.84*	1.79
AFDC monthly benefit, 1st payment	320.95*	311.34
AFDC monthly Benefit, last payment	320.20*	314.07
Welfare duration (days)	987.48*	879.67
% LEAP	1.4*	2.2
% Sanctioned	18.7*	21.1
% Transit. Medicaid	19.0*	20.0
% Own vehicle	50.9	41.9
Employment		
Hours worked per month	117.43	121.74
Hourly wage	5.71	5.66
Months previous work experience	42.57	45.90

*Statistically significant at the 5 percent level.

Table 14
Employment Outcomes for JSRP Participants
and the Comparison Group

Outcome	JSRP	Comparison Group	Earnings Difference (%)
Individuals with earnings (post-JSRP for JSRP) (%)	68*	92	-
Amount of earnings	2091.86*	1776.9	17.7
Individuals with 1995 quarter 2 earnings (%)	46*	48	-
Amount of earnings	2575.89*	2484.01	3.7

*Indicates that the JSRP mean is statistically different from the comparison group mean.

Table 15
Welfare Recipiency and Employment:
JSRP versus the Comparison Group

Outcome	JSRP	Comparison Group
All Individuals		
Currently receiving welfare support (%)	39.42*	41.00
AFDC amount	$347.71*	$336.99
Individuals working in 95:2		
Individuals Currently receiving welfare support (%)	23.10*	27.14
AFDC amount	$327.04	$323.75

*Statistically significant at the 5 percent level.

Table 16
Qualitative Results from the Employment Probits, by Quarter

Year: Quarter	JSRP1[a]		JSRP2[b]	
	Sign	Significance	Sign	Significance
1991:3	-	1%	-	1%
:4	-	1%	-	1%
1992:1	-	1%	-	1%
:2	-	1%	-	1%
:3	-	1%	-	1%
:4	-	1%	-	1%
1993:1	-	1%	-	1%
:2	-	1%	-	1%
:3	-	No	-	1%
:4	-	No	-	1%
1994:1	-	No	-	1%
:2	+	No	-	1%
:3	-	No	-	1%
:4	+	No	-	No
1995:1	+	No	-	No
:2	-	No	-	No

[a]Defined as any participation in JSRP.
[b]Defined as JSRP completion (i.e., participating in JSRP for three or more quarters).

Table 17
Log Earnings Regressions—Estimate of Program Effects, by Quarter

Year: Quarter	JSRP1[a]		JSRP2[b]	
	Coefficient	Significance	Coefficient	Significance
1991:3	-0.10	no	0.15	no
:4	0.02	no	0.08	no
1992:1	-0.16	10%	-0.05	no
:2	-0.09	no	-0.18	10%
:3	-0.005	no	0.01	no
:4	0.12	1%	0.18	1%
1993:1	0.07	10%	0.13	1%
:2	0.11	1%	0.15	1%
:3	0.06	5%	0.10	1%
:4	0.06	1%	0.12	1%
1994:1	0.11	1%	0.18	1%
:2	0.08	1%	0.12	1%
:3	0.08	1%	0.13	1%
:4	0.07	1%	0.10	1%
1995:1	0.10	1%	0.15	1%
:2	0.07	1%	0.06	1%

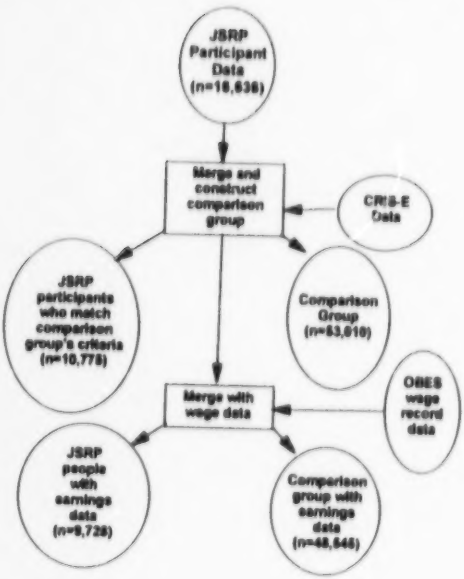
[a]Defined as any participation in JSRP.
[b]Defined as JSRP completion (i.e., participating in JSRP for three or more quarters).

Table A-1
Means for JSRP Participants in First Four Cohorts,
by Whether they Meet Selection Criteria

Variable	Full JSRP (Criteria=0)	Full JSRP that meets controls criteria (Criteria=1)
Personal Characteristics		
Age	29.57	28.53*
% White	0.83	0.74*
% Black	0.15	0.24*
% Hispanic	0.02	0.02
% Male	0.15	0.11*
% Married	0.36	0.25*
% Divorced	0.26	0.26
% Single	0.26	0.37*
Educational Background		
Years of education completed at time of AFDC opening	10.28	11.41*
Math grade level equivalency	6.25	6.43*
Family Characteristics		
No. of children @ AFDC opening	1.69	1.60*
Age youngest child @ AFDC opening	5.60	4.70*
Current no. of children	1.88	1.83*
AFDC monthly benefit, 1st payment	337.58	318.88*
AFDC monthly benefit, last payment	312.91	322.09*
AFDC duration	875.11	981.29*
LEAP	0.02	0.02
Sanctioned	0.19	0.18
Transit. Medicaid	0.15	0.19*
Has own vehicle	0.52	0.51
Employment		
Hours worked per month	117.98	117.34
Hourly wage	5.46	5.68*
Months previous work experience	39.51	43.29*
College/JSRP Experience		
Total credits earned	30.21	33.66*
GPA	2.56	2.66*

*Statistically significant at the 5 percent level.

Figure 1
Data Sources for Analyses


JSRP Participant Data (n=18,636)
Merge and construct comparison group
CRIS-E Data
JSRP participants who match comparison group's criteria (n=10,775)
Comparison Group (n=63,010)
Merge with wage data
OBES wage record data
JSRP people with earnings data (n=9,728)
Comparison group with earnings data (n=48,646)

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